

KIC

APQ-56 Improvement Program

file
equipped
E 7 8-30
T+P
4/3/57

SYSTEM

All 1.14 Resolution Problem - STAT

Presently, the resolution of the recorder is not equal to that of a 0.1 us transmitting and receiving system. In the search for a CRT that will equalize them, the literature on the subject is being searched and discussions have been started with DuMont, G. E. and W research. (Same as last report).

XH-2 2.14 Recorder Cooling - STAT

XH-3
Navy

Trial installation of blowers on one XH-2 recorder was completed on 25 March. Initial tests indicated that better cooling was attained, however, no actual thermocouple measurements have been made. Measurements are to be made as soon as practicable. A new design for the camera cover to allow ram air, presently available in area of camera, to cool the camera was released to Model Shop. It is planned that as soon as the trial installation proves satisfactory then a modification kit will be officially released to correct all units. Sufficient parts necessary to accomplish the modification are on order and the Model Shop is fabricating all other parts required.

XH-2 4.8 R. F. High Voltage Power Supply - STAT

XH-3
Navy

Three good units - electrical - have been potted; however, beside the fact that each of the three units exhibited voids (due to leakage and contraction in solidifying) which can be corrected for in future units, two of the units exhibited a much more serious fault: that of cracks throughout the unit. These cracks, although minute, usually penetrate into the components. These cracks can be surface sealed by a styrene cement as well as other resin materials to prevent moisture from penetrating the units; however, in thermal cycling, in the order of 6 - 10 cycles, the existing cracks would probably open up and result in an unsatisfactory unit.

A stronger stycast material is available that has a filler in it to attempt to make the material more crack resistance. This stronger stycast material may be used on an insofoam material which was suggested by the Material and Standards people.

At least one of the three units already poured will be finished for flight tests; meanwhile, further potting of plain stycast units will be suspended until results of insofoam and a stycast filler material are checked out.

All 6.14 P. E. Cell - STAT

Three P. E. Cell Test Sets are being built and tested to establish the sensitivity of P. E. Cells. All sets have been built. The correlation between sets with various bulbs is still $\pm 12\%$. A possible source of lamp current variation is in the regulator tubes. Their temp. range has a max. of 70° C for 2% regulation.

Work is being performed to determine if an external location for these tubes is necessary. A comparison of the frequency response of the tuned circuits of each set is also being performed for correlation results.

- All 11.14 Quick Disconnect Waveguide - []** STAT
- Parts are now on hand to permit modification of all Time-Shared equipments. This change will be included in the Mod Kit to incorporate maggie and klystron fins since the simultaneous drawing hangers are involved. These drawings are now being checked in Drafting. (Same as last report).
- All 12.14 Pulse Cable Connectors - []** STAT
- Five sets of pulse cable connectors of a new design have been received. Their adaptability to APQ-56 system has not yet been determined. (Same as last report).
- Time 13.14 AGC - []** STAT
Shared
- Design a new AGC that will be less susceptible to radio-frequency interference and stray pick-up. Extra shielding on L4801 put the stray pick-up level within Test Specification limits on one recorder.
- Drafting is working on a new quick-release clamp for P4801.
- All 15.13 Maggie Stem Pressure Seal - []** STAT
- Parts and materials for Modification Kit #11 have been ordered. The modification instructions and necessary change orders have been written. This improvement is considered completed. (Same as last report).
- Time 17.10 Wide Band Receiver - []** STAT
Shared
- The complete receiver is now in a system under test. Trouble with the system has held up evaluation of the receiver. Insufficient limit level range in the video amp. is the only fault so far. This will be corrected as soon as convenient.
- All 19.10 Receiver Design - []** STAT
- The overshoot requirement of the receiver was not resolved and work is continuing on the determination of this specification. An analysis of the AGC requirement of the system has been started. Information concerning the variations in noise level to be expected is being obtained. This has proven to be a very tedious procedure to date.
- All 21.8 Pulse Width (Quick Fix) - []** STAT
- All parts for modification of three units have been received. One set of parts has been shipped to field for a trial run in one side of XH-3 system. No reports from field have been received to date.
- All 20.8 Pulse Width - []** STAT
- Several runs have been made using the hand tube modulator driving the 6799 magnetron. Initial results indicate that to obtain an optimum R.F. envelope and spectrum, rise and fall times on the magnetron voltage pulse should be approximately 0.1 m sec.

All 22.6 Resolution Test Set - []

STAT

A means of measuring recorder resolution is needed in the field. Eight resolution test sets are being built by S. R. for the Time Shared system using commercial type construction. Construction is under way in the Lab.

 XH-2 23.3 2 KV Distribution - []
 XH-3
 Navy

STAT

A purchased part drawing for a 2 KV power supply with floating grounds has been made and should be confirmed with AMP this week. The use of this supply will eliminate all exposed high-voltage points in the recorder.

Drawings are being made of a transformer and molded voltage quadrupler which will be added to the monitor scope by change order. The monitor scope will then have its own 2 KV supply and the high voltage cable between the recorder and monitor scope will be eliminated. (Same as last report).

MOD KIT STATUS AS OF 4/2/57

Reference Nc	System	Kit No.	Description	Serial Nos.	Remarks
2.11.1	T/S	1.0	Recorder Cooler	06, 7, 8, 9	04, 05 to E&S 3/13
		1.1		03, 05	Dwgs. for 1st 6 units overdue
		1.2		01, 02, 04	
		1.3		12	Parts for 07 thru 13 - promised 4/18
		1.4		10, 11	from Shop.
		1.5		13	
2.11.2	T/S	1.1	Recorder Cooler	04, 05	Shipped
		1.2			
2.11.3	T/S	2.0	Camera Cooling	07 thru 17	Covers must be modified - MSR 22965
		2.1		01, 02, 04, 05	promise 4/5
		2.2		03	Shipped
		2.3		06	"
5.9C	T/S	3.0	Camera Servo Motors	02, 03, 06	Shipped
		3.1		01, 04, 05	"
XH-2		3.2	(DYD-40037) "	01, 02, 03	"
Navy		3.2	(DYD-40065) "	01	"
5.9D	T/S	4	Focus & Alignment		Shipping Instructions
XH-2		Fixture			
T/S		5	Recorder 10 KV Power Supply AMP Pack	01 thru 14	Waiting for AMP Packs - 6 Driver Assys available. Shop Prom. 4/18
					System 12 Shipped 3/29/57
	T/S	6	Power Supply Fuse Protection for 28 V	01 thru 09	On Shipping floor
	T/S	7	Focus Alignment Fix. Provide for rear Antenna Feed	01 thru 06	Waiting for reticle on P.O. 11554
				07 thru 17	Promised W/S 4/2/57

<u>Reference No.</u>	<u>System</u>	<u>Kit No.</u>	<u>Description</u>	<u>Serial Nos.</u>	<u>Remarks</u>
	Navy		DYD-40065	01	
	T/S	8.0	Control Panel to prevent Synchro damage	07 thru 12	On Shipping Floor
		8.1		01 thru 06	On Shipping Floor
	T/S	9	Synchronizer - Replace Clutch in Alt. Serva	01 thru 12	Procuring Prints & Material - No Prom. Date from Shop CO 72387 thru 72387-2 (1 Assy.)
	XH-2	"	(DYD-40037)	01, 02, 03	
	XH-3	"	(DYD-40056)	01, 02	
1.11	T/S	10	Power Supply Decrease 400 V. Ripple	01 thru 13	Shipped
15.10	All	11	Maggie Seal	All	Not rec'd from Engr - Some parts on order. 4 to 5 Wks. Del. - No Promise From Shop in Items AOA Per CO 72323 (2 Items)
	T/S	12	Ant. System Adjust Angle of Rod	01, 02	No Prom. from Shop on Parts (1 Assy.) CO 73357 thru 73357-1 Waiting on release of Dwgs.
	XH-2	13	Ground Range Sweep	01, 02, 03	Procuring Material & Parts
	XH-3	13.1	Add Clamping Circuit	01, 02	
	T/S			07 thru 14	
		14	Cabling		Not released by Engineer
		15	AGC Clamp Video Amp.		Not released by Engineer
	XH-3	16	Nameplate	01, 02	Shipped
	XH-2	17	Cooling Fins Maggie & Klystron	01, 02, 03 01 thru 16	Not Rec'd from Engr.
		18	Trigger Circuit		Not Rec'd from Engr.

S U M M A R Y

<u>TOTAL KITS</u>	<u>SHIPPED</u>	<u>ON S/F</u>	<u>BALANCE</u>
141	19	21	101